

# Temperature and Humidity Transmitter TZ-THT03C

V1.3



# 1 Product Overview

TZ-THT03C temperature and humidity transmitter is developed based on 4-20mA current output. It adopts SHT30 sensor, newly designed CMOS chip, an improved capacitive humidity sensor and a standard energy gap temperature sensor. Its performance has greatly improved and even exceeded the reliability level of the previous generation of sensors-SHT1x and SHT7x. So the performance is more stable in high humidity environment.

TZ-THT03C adopts a three wire system, that is, one wire is used for the positive pole of the power supply, another wire is used for the positive pole of the output signal, and the third wire is shared between the negative pole of the output signal and the negative pole of the power supply, which reduces the weight and volume of the transmitter, and improves the anti-interference ability.

TZ-THT03C adds display screen and indicator light, so that users can more intuitively see the temperature and humidity data and machine status.

TZ-THT03C adopts 4-20mA current output mode, which makes TZ-THT03C have the characteristics of strong anti-interference ability, high precision and high stability.

## 2 Features

- Strong anti-interference ability
- High acquisition accuracy
- Good stability
- Less errors
- Intuitive display with LCD screen,

## 3 Application

It is generally used in indoor clean environment, such as,

- Communication room
- Intelligent buildings
- Workshop
- Warehouse, ventilation duct and shed
- Laboratories, hospitals, libraries, museums
- Storage and production facilities in the pharmaceutical, paper, food and electronics industries

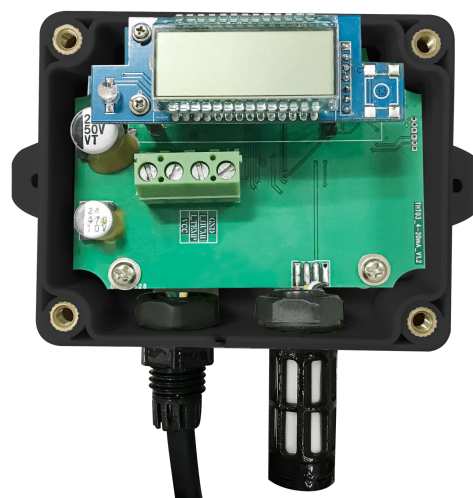
## 4 Technical Data

Sensor	SHT30
Measuring Range	Temperature: - 40 ~ 125 °C Humidity: 0 ~ 100%
Measurement Accuracy	Temperature: ± 0.2 °C Humidity: ± 2%
Resolution	Temperature: 0.1 °C typically Humidity: 0.1%RH typically
Power Supply Voltage	DC 12~30V
Display Mode	LCD screen
Collection Interval	10S
Work Environment	-40~ 85 °C, 0 ~ 100% RH (no condensation)
Output	4-20mA, 3- wire
Electrical Interface	VCC: positive terminal of power supply GND: common terminal between negative pole of power supply and negative pole of output signal Temp: temperature, output signal positive Humi: humidity, output signal positive
Size	109mm x 67mm x 40mm

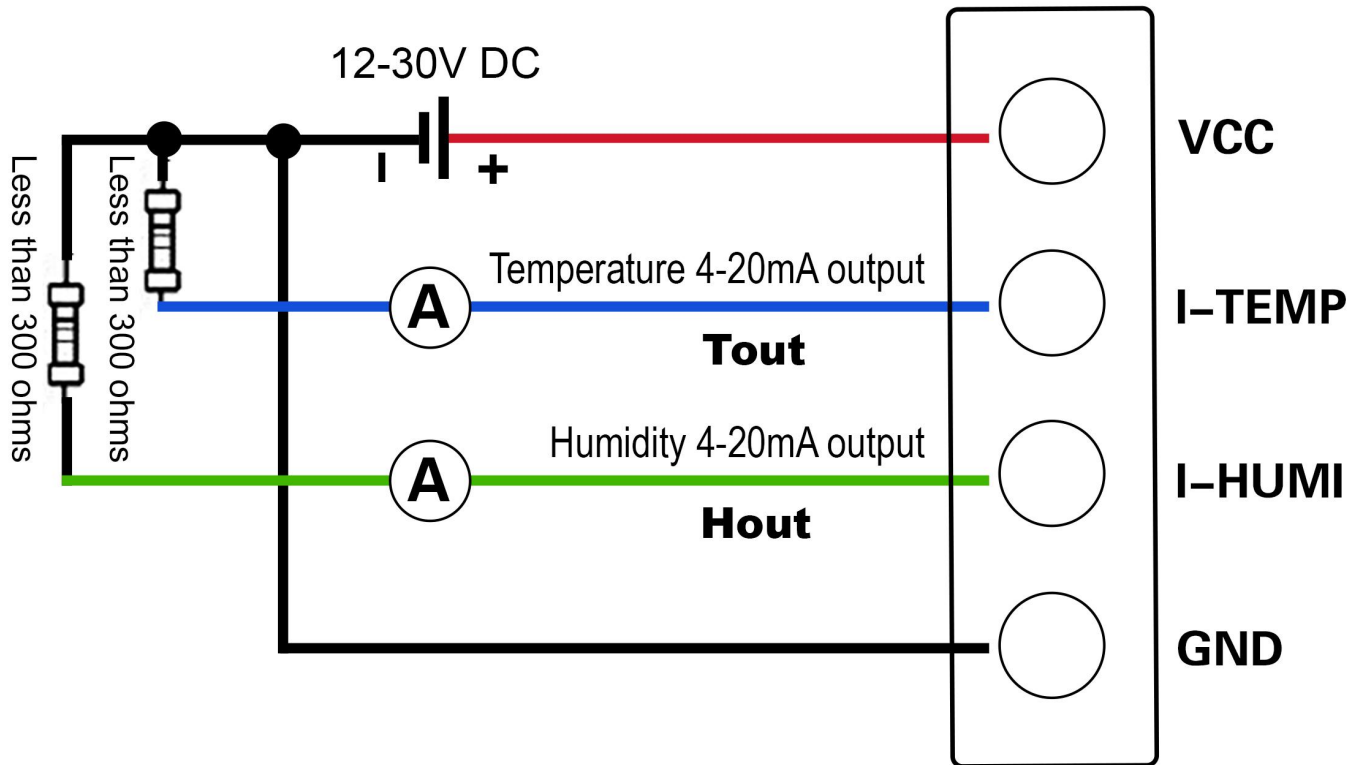
## 5 Connection Description



Step 1



Step 2



Connection Diagram

The figure above is the schematic diagram of the correct steps of the connecting line.

Step 1: Unscrew the screws at the four corners in the figure with a screwdriver.

Step 2: Open the cover, unscrew the screw with a screwdriver, and then tighten the screw after connecting the required cable, in which the interfaces from left to right are VCC, TEMP, HUMI and GND respectively. Please carefully check the "electrical interface" in technical data. For the connection method, please refer to "Connection Diagram".

## 6 Conversion method

THT03C is 4-20mA output, it's three-wire system, the conversion method is as follows:

Temperature conversion: temperature range(-40°C, 125°C) ,

the current output range (4mA, 20mA). it's linear conversion. For example, the 4mA means -40°C, the 20mA means 125°C

How to convert temperature to current? For example, the temperature is 20°C, the output current is  $(20+40)/(125+40) * (20-4) +4=9.82\text{mA}$

How to convert current to temperature? For example, the output current is 12mA, the temperature is  $\{(12-4)/(20-4)\}*(125+40)-40=42.5^\circ\text{C}$

Humidity conversion: humidity range(0%, 100%), the current output range(4mA, 20mA), it's linear conversion.

For example, the 4mA means 0%, the 20mA means 100%

How to convert humidity to current? For example, the humidity is 80%,the output current is  $(80/100)*(20-4)+4=16.8\text{mA}$

How to convert current to humidity? For example, the output current is 12mA, the humidity is  $((12-4)/(20-4))*(100)=50\%$

## 7 Dimensions

